

**CLAIMS:**

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent is:

1. 1. A user context classifier for a customer self service system that performs resource search and selection, said system including a context attribute database comprising types of user contexts and one or more context attributes associated with each user context for processing by said system, and context attribute function database comprising functions for computing values for each context attribute, said classifier comprising a mechanism for receiving a user query and a context vector comprising data associating an interaction state with said user and, processing said query and context vector against data included in said context attribute database and context attribute function database for predicting a particular user context, wherein said classifier populates said user context vector with context parameters specifying a user interaction state for use in a subsequent resource search.
1. 2. The user context classifier for a customer self service system as claimed in Claim 1, wherein said processing mechanism includes mechanism for applying said functions to context for specifying said user interaction state, said mechanism further annotating the context vector with a set of context parameters for use in subsequent processing.
1. 3. The user context classifier for a customer self service system as claimed in Claim 1, wherein said processing mechanism implements an inductive learning algorithm for predicting said user contexts.
1. 4. The user context classifier for a customer self service system as claimed in Claim 1, further including mechanism for updating the attribute value functions database with more enhanced functions.

- 1    5. The user context classifier for a customer self service system as claimed in Claim 1,  
2    wherein said system further includes a user interaction database comprising data relating to  
3    past user queries entered into the system and associated user contexts for particular users, said  
4    mechanism for updating the attribute value functions database comprising mechanism for  
5    analyzing historical user interaction data from the user interaction database and learning how  
6    context attribute values map to context attribute functions, wherein said data from the user  
7    records database serves as a training set for continuous improvement of said functions in said  
8    attribute function database.
  
- 1    6. The user context classifier for a customer self service system as claimed in Claim 5,  
2    wherein said user interaction data includes data relating to previous system interactions, said  
3    data including user validated contexts that were applicable during said prior system  
4    interactions, and the users responses relating to those interactions.
  
- 1    7. The user context classifier for a customer self service system as claimed in Claim 6,  
2    wherein said previous system interaction data further includes prior transactions of a current  
3    user and prior transactions of other similar users, wherein common behaviors and acceptance  
4    criteria are determined for said updating said functions.
  
- 1    8. The user context classifier for a customer self service system as claimed in Claim 7,  
2    wherein similar users comprise those users with shared organization, community or  
3    environmental characteristics.
  
- 1    9. The user context classifier for a customer self service system as claimed in Claim 5,  
2    wherein said updating mechanism provides additions and modifications to a set of context  
3    attribute functions resulting in increasing ability to predict derived contexts as functions of the  
4    raw contexts.

1    10. A method for classifying user contexts for a customer self service system that performs  
2    resource search and selection, said method comprising the steps of:  
3  
4    a) receiving a user query and a context vector comprising data associating an interaction state  
5    with said user;  
6  
7    b) processing said query and context vector against data included in a context attribute  
8    database comprising types of user contexts and one or more context attributes associated with  
9    each user context for processing by said system; and  
10  
11    c) processing said query and context vector against data included in a context attribute  
12    function database comprising functions for computing values for each context attribute,  
13    wherein said processing steps b) and c) results in predicting a particular user context and  
14    populating said user context vector with context parameters specifying a user interaction state  
15    for use in a subsequent resource search.

1    11. The method as claimed in Claim 10, wherein said processing step c) further includes the  
2    step of applying said functions to context for specifying said user interaction state, said  
3    populating step including annotating the context vector with a set of context parameters for  
4    use in subsequent processing.

1    12. The method as claimed in Claim 10, wherein said processing step c) further includes the  
2    step of implementing an inductive learning algorithm for predicting said user contexts.

1    13. The method as claimed in Claim 10, further including the step of updating the attribute  
2    value functions database with more enhanced functions.

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1    14. The method as claimed in Claim 13, wherein said updating step includes the steps of:  
2  
3    analyzing historical user interaction data from a user interaction database comprising data  
4    relating to past user queries entered into the system and associated user contexts for particular  
5    users; and,  
6  
7    mapping context attribute values to context attribute functions, said data from said user  
8    records database serving as a training set for continuous improvement of said functions in said  
9    attribute function database.

1    15. The method as claimed in Claim 14, wherein said user interaction data further includes  
2    data relating to previous system interactions, said data including user validated contexts that  
3    were applicable during said prior system interactions, and the users responses relating to those  
4    interactions.

1    16. The method as claimed in Claim 15, wherein said previous system interactions includes  
2    prior transactions of a current user and prior transactions of other similar users, said functions  
3    updating step including the step of determining common behaviors and acceptance criteria  
4    from said previous system interactions.

1    17. The method as claimed in Claim 16, wherein said similar users comprise those users with  
2    shared organization, community or environmental characteristics.

1    18. The method as claimed in Claim 16, wherein said updating step includes the steps of  
2    providing additions and modifications to a set of context attribute functions resulting in  
3    increasing ability to predict derived contexts as functions of raw contexts.

1    19. A program storage device readable by machine, tangibly embodying a program of  
2    instructions executable by the machine to perform method steps for classifying user contexts

3 for a customer self service system that performs resource search and selection, said method  
4 comprising the steps of:  
5 a) receiving a user query and a context vector comprising data associating an interaction state  
6 with said user;  
7  
8 b) processing said query and context vector against data included in a context attribute  
9 database comprising types of user contexts and one or more context attributes associated with  
10 each user context for processing by said system; and  
11  
12 c) processing said query and context vector against data included in a context attribute  
13 function database comprising functions for computing values for each context attribute,  
14 wherein said processing steps b) and c) results in predicting a particular user context and  
15 populating said user context vector with context parameters specifying a user interaction state  
16 for use in a subsequent resource search.

- 1 20. The program storage device readable by machine as claimed in Claim 19, wherein said  
2 processing step c) further includes the step of applying said functions to context for specifying  
3 said user interaction state, said populating step including annotating the context vector with a  
4 set of context parameters for use in subsequent processing.
- 1 21. The program storage device readable by machine as claimed in Claim 19, wherein said  
2 processing step c) further includes the step of implementing an inductive learning algorithm  
3 for predicting said user contexts.
- 1 22. The program storage device readable by machine as claimed in Claim 19, further  
2 including the step of updating the attribute value functions database with more enhanced  
3 functions.

- 1    23. The program storage device readable by machine as claimed in Claim 22, wherein said
- 2    updating step includes the steps of:
- 3    analyzing historical user interaction data from a user interaction database comprising data
- 4    relating to past user queries entered into the system and associated user contexts for particular
- 5    users; and,
- 6
- 7    mapping context attribute values to context attribute functions, said data from said user
- 8    records database serving as a training set for continuous improvement of said functions in said
- 9    attribute function database.
  
- 1    24. The program storage device readable by machine as claimed in Claim 23, wherein said
- 2    user interaction data further includes data relating to previous system interactions, said data
- 3    including user validated contexts that were applicable during said prior system interactions,
- 4    and the users responses relating to those interactions.

USPTO Patent Application  
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